



# GEOLOGICAL SOCIETY OF NEVADA NEWSLETTER

Geological Society of Nevada, 2175 Raggio Parkway, Room 107, Reno, NV 89512  
(775) 323-3500 - Hours Tuesday -- Friday, 8 a.m. to 3 p.m. Monday by appointment.

Website: [www.gsnv.org](http://www.gsnv.org) • E-mail: [gsn@gsnv.org](mailto:gsn@gsnv.org)



November 2016, Vol. 32, No. 9

Published monthly except June and July

## PRESIDENT

Alan Coyner  
Consulting Geologist  
[nevadageo@hotmail.com](mailto:nevadageo@hotmail.com)

## VICE PRESIDENT

Kelly Cluer  
Kinross Gold  
[Kelly.cluer@kinross.com](mailto:Kelly.cluer@kinross.com)

## SECRETARY

Steven Weiss  
Consultant, Geologist  
[siraweiss@outlook.com](mailto:siraweiss@outlook.com)

## TREASURER

Bob Kastelic  
Consulting Geologist  
[bob\\_kastelic@yahoo.com](mailto:bob_kastelic@yahoo.com)

## MEMBERSHIP CHAIR

Molly Hunsaker  
Hunsaker, Inc.  
[mollymhunsaker@aol.com](mailto:mollymhunsaker@aol.com)

## PUBLICATION CHAIR

David Boden  
Truckee Meadows Community College  
[dboden@tmcc.edu](mailto:dboden@tmcc.edu)

## EXECUTIVE MANAGER

Laura Ruud  
Geological Society of Nevada  
[gsn@gsnv.org](mailto:gsn@gsnv.org)

## GSN BOARD OF DIRECTORS

Chairman  
John Watson

Current GSN President:  
Alan Coyner

Most Recent Past GSN President  
Elizabeth Zbinden

Elko Chapter President  
Mark Travis

So. Nevada Chapter President  
Paul Dockweiler

Winnemucca Chapter President  
James Carver

Class A, 2015-2018  
Robert Thomas  
John Watson—CHAIR

Class B, 2016-2019  
David Caldwell  
Greg French

Class C, 2014-2017  
David Shaddrick  
Camille Prenn

## CALENDAR OF GSN EVENTS

Nov. 10, 2016  
Thursday

**NOTE  
CHANGE!**

### SO. NEVADA CHAPTER MEETING (NOTE 2nd Thursday this month!!)

The monthly meeting will be held at the Las Vegas Natural History Museum at 900 N. Las Vegas Blvd. Pizza/drinks at 5:30 pm, Talk at 6:30 pm. **Speaker: Dr. Lewis Owen, Geology Chair, Univ. of Cincinnati. Title: "Towards Defining the Timing and Rates of Quaternary Landscape Evolution in Nevada and California using Cosmogenic and Luminescence Dating: Opportunities and Challenges".** Also 3 "day trips" planned! **Dinner & Drinks sponsored by CARDNO.** Contact Paul Dockweiler for more information: [paul.dockweiler@cardno.com](mailto:paul.dockweiler@cardno.com). Details on page 7.

Nov. 11, 2016  
Friday!!

**Joint  
Meeting!**

### ELKO & WINNEMUCCA JOINT CHAPTER MEETING *in Battle Mountain!!*

This 5th annual joint Chapter meeting will be held at the Battle Mountain Civic Center, 625 S. Broad St., Battle Mountain NV. Refreshments at 6:30 pm, Talk at 7:30 pm. **Speaker: Moira Smith, Pilot Gold. Title: "History, Geology and Mineralization at the Goldstrike Property, Southwestern Utah".** **Food, Drinks and Busses Sponsored by: NEWMONT MINING & BARRICK GOLD.** For more info please contact Mark Travis in Elko, [mark.william.travis@gmail.com](mailto:mark.william.travis@gmail.com) or James Carver [icarver@silverstandard.com](mailto:icarver@silverstandard.com) Details and abstract on page 6.

Nov. 18, 2016  
Friday

### GSN MEMBERSHIP MEETING (3rd Friday of the month)

The GSN meeting will be held at the Reno Elks Lodge, 597 Kumle Lane, Reno, Nevada. Social hour begins at 6 pm, Dinner at 7 pm and talk at 7:45 pm. **Speaker: Andrew Jansen, Newmont Mining Corp. Title: "Twin Creeks Mine Update: Underground development of the Vista Shear Zone follows thirty years of surface mining".** **Drinks Sponsored by ENVIROTECH DRILLING. Dinner cost is \$25/each.** Please contact Laura Ruud at the GSN Office for dinner reservations. [gsn@gsnv.org](mailto:gsn@gsnv.org) or 775-323-3500. Details and Abstract on page 3.

Dec. 14, 2016  
WEDNESDAY  
CHRISTMAS  
MEETING!



### SAVE THE DATE FOR THE GSN CHRISTMAS MEETING, SILENT AUCTION & RAFFLE!! PLEASE DONATE RAFFLE & AUCTION ITEMS TODAY!

The GSN's annual Christmas meeting and Foundation Fundraiser will be held at the Nugget Casino Resort, Sparks, Nevada. **Speaker: Catherine Hickson, USGS. Topic: Mt. St. Helens Eruption. Cost for Dinner—\$40.00.** Please make reservations for dinner with Laura Ruud, by emailing [gsn@gsnv.org](mailto:gsn@gsnv.org). 775-323-3500. Details on page 9.



## G.S.N. NOVEMBER SPONSOR

*Envirotech Drilling LLC*

Steve Neilsen  
President  
(775) 340-9191 cell

900 E. 4th Street  
Winnemucca, NV 89445  
(775) 623-2339 office  
Email: [envirotechdrilling@comcast.net](mailto:envirotechdrilling@comcast.net)



**FROM THE PRESIDENT**  
**Alan R. Coyner, GSN President 2016-2017**  
**NOVEMBER 2016**



Greetings to all our GSN members wherever you may be! I hope you were able to attend one of our October meetings and enjoyed renewing old friendships and making new ones. We continue to offer insightful and informative talks which educate and stimulate our members and their guests. Please take the opportunity to join us at one of our November meetings!

Kudos to **Vice-President Kelly Cluer** for leading another successful **GSN Fall Field Trip!** Kelly was ably assisted by **Laura Ruud** who did a tremendous job of organizing all the logistics. The weather, although threatening, held off as the mighty rain shadow of the Sierra Nevada again proved to be our friend (Fact: It doesn't rain much in Nevada!). You need to know that a significant amount of new information was compiled in the field trip guidebook. Many thanks to **Kevin Russell** for the Rawhide write-up and a tip of the hat to **Joe Kizis** for the added material on the Wind Mountain deposit. The guidebook has a number of outstanding illustrations from the two deposits and can be ordered from the GSN website. The field trip was underwritten by many of our faithful sponsors including **Kinross, Pershing Gold, Boart Longyear, Marcus & Marcus Drilling, ALS Minerals, Bravada Gold, and Great Basin GIS**. Thank you very much to these companies for helping us to keep up our tradition of organizing first-class field trips.

Last month I spoke with you concerning the importance of **education** and **mentoring**. We are all aware of the aging of our workforce and the ongoing need to train and educate a new generation of geology and mining professionals. I recently attended a meeting of the **Executive Advisory Board of University of Nevada Mackay School of Earth Sciences and Engineering** and would like to share some good news with you. Enrollment and graduation rates at the Mackay School continue to be very healthy! This fall 442 undergraduate and graduate students are enrolled in the Mackay majors and last year 125 students received their degree. Looking more closely at **Mining Engineering**, you might be surprised to know that 26 men and women received their undergraduate degree last year compared to 9 in 2008. I believe this is a very positive affirmation of the decision in 2008 by the mining claimholders in Nevada to support the Mining Engineering program at Mackay through a \$2.00 increase in the county mining claim fee. These students are our future. When they come to us and ask for our support for attendance at technical conferences, field trips, and mining competitions please respond positively to their request.

I want to bring your attention to a very meritorious accomplishment of one of our members. **Daphne (D.D.) LaPointe**, Geologist Emerita, Nevada Bureau of Mines and Geology, is being recognized by the Girl Scouts of the Sierra Nevada. The award is for her contributions to inspire young women in the area of STEM (Science, Technology, Engineering and Math). Should you wish to join D.D. at the TRIUMPHANT: Celebrating Women in Leadership Awards Ceremony on November 17<sup>th</sup> please contact Amber Aiton at: [aaiton@gssn.org](mailto:aaiton@gssn.org).

This is the time of year when we ask you to renew your **GSN Membership** for 2017. I believe we continue to offer a great value for your annual dues of \$50.00. Please go to the GSN website and renew your membership online or download the membership form. And why not invite a friend to attend one of our meetings and ask them to join our great organization?

You have heard repeatedly from me about the importance of **involvement**. Our organization continues to benefit from the involvement of so many of our dedicated members. It is this involvement that preserves and enhances our society. Remember, the best way to get involved is to **volunteer!**

**The G.S.N. wishes to thank**  
**RUEN DRILLING for sponsoring the**  
**OCTOBER SOCIAL HOUR in RENO!!**



# **GSN Membership Meeting NOVEMBER 18, 2016!**

---

**SPEAKER: ANDREW JANSEN, NEWMONT MINING CORPORATION**

**TOPIC: TWIN CREEKS MINE UPDATE**

**Social Hour begins @ 6:00 pm; Dinner @ 7:00 pm;**

**Speaker to Follow @ 7:45 pm**

**Location: RENO ELKS LODGE, 597 KUMLE LANE (across from the Convention Center)**

**DINNER COST—\$25.00 per person.**

**(You will be invoiced if you do not cancel your reservation)**

For dinner reservations, please e-mail [gsn@gsnv.org](mailto:gsn@gsnv.org) or call 775-323-3500

**Reservations due by 5:00 p.m. on WEDNESDAY, NOVEMBER 16, 2016**



## **Twin Creeks Mine Update**

**Underground development of the Vista Shear Zone follows thirty years of surface mining**

**Andrew Jansen**

**Newmont Mining Corporation, Twin Creeks Mine Operations**

### **Abstract**

The Twin Creeks Mine operated by Newmont Mining Corporation is located in Humboldt County, Nevada, approximately 45 miles northeast of Winnemucca. Since 1987, over 14 million ounces of gold have been produced from the Mega pit, West pit and Vista pits. Carlin-type mineralization is hosted in late Cambrian through Cretaceous age rocks comprised of Cambrian-Ordovician Comus Formation in Roberts Mountains thrust contact with overlying Valmy Formation basaltic rocks and related siliciclastic sediments. Rocks of the Valmy and Comus Formations are unconformably overlain by coarse clastic and carbonate rocks of the Pennsylvanian-Permian Battle and Etchart Formations, which in turn are overlain by diverse rocks of the Havallah Formation along the Golconda thrust. Cretaceous porphyritic dikes of dacitic composition, with associated hornfels, are abundant in the northern half of the mine property.

Carlin-type mineralization is spatially related to north and northeast-trending structures, the northeast structures being truncated by the northerly system, which offset Quaternary gravel. All faults appear to be pathways for gold-bearing fluids. Passive replacement styles of mineralization are common in Comus and Etchart Formation carbonates while brittle deformation with fracture/fault controlled mineralization is prevalent in Valmy Formation units.

As surface mining reaches greater depths, the need for underground resource evaluation becomes imperative. One underground resource currently in development is the Vista Shear Zone, which is accessed from the bottom of Vista Pit Phase 6. Gold mineralization is hosted in Valmy Formation basalts along a northeast-striking shear zone that juxtaposes two contrasting styles of mineralization. Initially, quartz-base metal mineralization consisting of bull quartz, pyrite, sphalerite, pyrrhotite and galena occurs in veins up to 2 feet in thickness (historically referred to as the Galena Vein). Later movement and brecciation of the Valmy basalt, base metal veins and Cretaceous dikes introduces Carlin-type "sooty" sulfide, gold-bearing mineralization.

Although the paradigm shift from surface to underground mining is nothing new to Carlin-type deposits, the Vista Shear Zone is an example of the continuous exploration potential within the district and marks a new and exciting chapter in the evolution of Twin Creeks.

# FACES OF GSN

## Joshua R. Ellis, Geologist

In 1979, just after I turned 2 years old, my parents made the bold decision to leave the bustling yuppie culture of Orange County, California, to purchase a tiny general store in Fish Camp, a town of 36 inhabitants in the high country of the Sierras, at the southern edge of Yosemite National Park. It was truly an amazing place to grow up and I will always be thankful to my parents taking that risk to sell out of Southern California for the quiet life of the Sierras. In my early school days, I attended a one-room school house with eight other kids, which combined kindergarten through 8<sup>th</sup> grade, in the YNP town of Wawona. I graduated from Yosemite High School in Oakhurst, but I can't say I was exposed too much Geology/Geoscience through my primary education. Perhaps that's because when you live on the batholith, it seems like there are only two types of rock in the world: granite and decomposed granite.

My original plan was to pursue a business degree in college, but thankfully I wound up in the Geology program at UC Santa Barbara. UCSB was a fantastic experience, learning earth science from some of the real giants of the discipline. While at Santa Barbara I was fortunate to work on a senior thesis for Dr. Jim Mattinson involving conventional TIMS U/Pb geochronology and learned to map at the Poleta Folds, a standard rite of passage. After graduation I tried to avoid the real world at all cost by traveling around the Mediterranean, SE Asia and Australia, backpacking with UCSB geo-friends for 6 months.

After returning to reality, I attempted to earn a living as an environmental geologist for Tetra Tech Inc., based in Santa Barbara. During that time I primarily focused on groundwater contaminant plumes and remediation at Vandenberg and Edwards Air force bases, but I quickly decided that this was not the professional path for me. After consulting with mentors at Santa Barbara, I was connected with Dr. Bill McClelland at the University of Idaho, and started a tectonics and geochronology MSc thesis involving the Paleozoic suture zone of western Gondwana and the pre-Cordillera terrane in western Argentina. I spent two field seasons in the San Juan Province, mapping in an upper amphibolite- to granulite-facies gneiss dome, collecting samples for U/Pb zircon analysis, eating fabulous meat, drinking mate and enjoying fine Malbec by the camp fire. The analytical data for the thesis was acquired on the LA-ICPMS at Washington State University and the SHRIMP-RG at the Stanford/USGS facility. As a lowly grad-student, most all of my time spent on those instruments was between the hours of 11pm and 5am, mostly to keep the instrument running. Bill was an excellent advisor and mentor, keeping my office mate and me on task, and getting us in and out of Moscow, ID in less than 2 years.



Sean Mulcahy (left) and I with Julio and his family in the village of Las Chacras, San Juan Prov., Argentina. 2003



Trying to make a friend out of a stick.... Argentina 2004

After graduate school, Bill put me in touch with some of his former colleagues and I started working for NovaGold Resources, exploring for VMS deposits in the schist belt of the southern Brooks Range of Alaska. It was an exciting and talented group to work with and was very opportune timing for me, given that it was 2005 and the industry was just beginning to rebound. When I started full-time with NovaGold, the "age-gap" between the next oldest staff geo and myself was about 25 years. As exploration budgets surged with limited manpower, I found myself moving quickly from the sampler/core logger role to project management of logistically complex projects in remote parts of the bush. It was a steep learning curve and I made plenty of mistakes, but the experience was invaluable. The key lesson I learned those first couple years was to locate the most experienced individuals, ask them a lot of questions, and listen closely.

(Continued on page 5)

(Josh Ellis continued from page 4)



Arm waving in Alaska with Lou O'Connor (left), Brooks Range, AK spring 2006



Arctic Ridge, with a view east into the Kogoluktuk River Valley, Brooks Range, AK spring 2006

In 2006 at NovaGold's Dahl Creek camp in the southern central Brooks Range, I was extremely fortunate to meet my future wife, Laura De Grey (now Laura Ellis, whom many of you know from her time at ALS Minerals). After the end of that field season, Laura accepted a contract geologist position at Round Mountain, NV and to my delight, she wanted me to come with her. I continued to work for NovaGold in Alaska while living in Hadley (Round Mtn), meanwhile taking much grief from my managers for relocating my home base to company-owned town, 4 hours from an airport, in the middle of nowhere. After all, we worked remotely, so I could have lived anywhere in the western lower 48 or Alaska. The reality was that living in a dumpy contractor trailer in the center of Nevada was exactly where I wanted to be. By mid-2007 Kinross had an opening for an exploration geologist around Round Mountain and I decided this was a great opportunity to learn more about LSE epithermal systems. Laura and I worked and lived at Round Mountain for several years, thoroughly embracing and enjoying life in the Smoky Valley. We moved on in 2010 to try our luck in north central Washington, with Kinross' Kettle River Operations. I spent the next 2 years exploring for Au-Skarns and LSE-epithermal systems in the greater Republic district and evaluating projects in southern BC and the US northwest. In late 2011, I joined Kinross' exploration team in Reno and I have been focused on the Great Basin ever since. June of 2017 will mark my 10<sup>th</sup> year with Kinross (knocking on wood as I type). Laura is now teaching middle school science in Sparks, and we have two small children, Eva (5) and Richard (2), and we hope to call Reno home for the long term.



Looking at core at La Coipa Mine, Atacama Chile, 2011



Laura and I ascending Marum Volcano, Island of Ambrym, Vanuatu, 2009



## **GSN ELKO & WINNEMUCCA CHAPTERS**

### **6th ANNUAL JOINT MEETING**



**FRIDAY, NOVEMBER 11, 2016**

**Location: BATTLE MOUNTAIN CIVIC CENTER**

625 S. Broad Street, Battle Mountain NV

**Time: 6:30 p.m.—Appetizers/Drinks**

**7:30 p.m.—Talk begins**

**GUEST SPEAKER: MOIRA SMITH, PILOT GOLD**

**TITLE: “History, Geology and Mineralization at the Goldstrike Property, Southwestern Utah”**

**Food, Drinks and Busses Sponsored by:**

**BARRICK GOLD & NEWMONT MINING CORP.**



**ELKO BUS LEAVES RALEY’S PARKING LOT AT 5:20 P.M.!**

**WINNEMUCCA BUS LEAVES WALMART PARKING LOT AT 5:20 PM!**

**“History, Geology and Mineralization at the Goldstrike Property, Southwestern Utah”**

**Moira Smith, Pete Shabestari, Will Lepore, Randy Hannink and April Barrios, Pilot Gold  
Jason Babcock, Consulting Geologist**

**Abstract:**

Goldstrike is a Carlin-style, sediment-hosted gold property located in Washington County, southwest Utah, with a stratigraphic and structural setting and gold mineralization similar to other sediment-hosted gold systems in the Great Basin. Pilot Gold controls 100% of the 6,700 ha property.

Goldstrike operated as an oxide, heap leach mine from 1988 to 1994. It produced ~209,000 ounces of gold and ~197,000 ounces silver from 8 million tonnes of ore at an average grade of 1.2 g/t gold from 12 shallow pits, and closed due to low gold prices and lack of space on the leach pads.

Since acquisition in mid-2014, Pilot Gold has compiled a digital database of drill holes (+1,500), blast hole samples (+100,000) and historic rock and soil samples, and has constructed a 3D model of geology and mineralization. Fieldwork included collection of an additional 1,384 soil samples and 294 rock samples, staking of additional claims, and detailed mapping. A drilling program commenced in late 2015 and is ongoing.

At Goldstrike, the Eocene Claron Formation and overlying Miocene volcanic rocks rest unconformably on a basement of deformed middle and late Paleozoic carbonate and siliciclastic rocks. The sequence is cut by steep, arcuate oblique-slip faults that form a sequence of horsts and grabens. Sandstone and conglomerate comprising the (continued on page 7)



# GSN SOUTHERN NEVADA CHAPTER MEMBERSHIP MEETING



**THURSDAY, NOVEMBER 10, 2016**

**Location: Las Vegas Natural History Museum, 900 Las Vegas Blvd. North**

**Time: Pizza & Drinks @ 5:30 p.m., Talk begins @ 6:30 p.m.**

**SPEAKER: Dr. LEWIS OWEN, UNIVERSITY OF CINCINNATI**

**TITLE: "Towards Defining the Timing and Rates of Quaternary Landscape Evolution in Nevada and California using Cosmogenic and Luminescence Dating: Opportunities and Challenges"**

**Dinner and Drinks Sponsored by: CARDNO**



**Biography:** Dr. Lewis Owen is a distinguished glacial geomorphologist and Chairman of the Geology Department at the University of Cincinnati. He worked on the glacial features and glacial deposits on Mt. San Geronimo in Southern California, and is currently at a glacier in the Himalayas. He will be coming to Las Vegas on Wednesday, Nov. 9.

GSN Member, Dr. Nick Saines has lined up 3 informal day trips with Dr. Owen that are all open to GSN members!

*(Please contact Nick Saines or Paul Dockweiler regarding where to meet each day and carpool arrangements!)*

**On Thursday, November 10,** Dr. Saines will be taking Dr. Owen out to see possible glacial deposits in Kyle Canyon. This will include a two mile round trip hike (one mile up, one mile back) to a micrite with striated stones at elevation 8,300 ft. that he discovered about 25 years ago. (The parking lot is at elevation 7800 ft, so 500 ft of elevation gain.) Is it glacial till? A debris flow deposit? It grades up into stratified sand and gravel - outwash? alluvium?) They will also visit outcrops of a deposit mapped as Pleistocene alluvium, and a deposit that looks like outwash to Nick, including an outwash plain.

**Thursday, November 10 evening** is the GSN So. Nevada Chapter meeting where Dr. Owen will be the speaker.

**On Friday, November 11,** Dr. Saines will be taking Dr. Owen out to see possible glacial deposits on the connector road between Kyle and Lee Canyons and in Lee Canyon. Just driving and stopping, no planned hikes.

**On Saturday, November 12,** Dr. Owen and Dr. Saines will be re-visiting the highlights of the two days in the field, including the hike to the putative till deposits. This is for those unable to attend during the week.

All the field trips are open to GSN and UNLV students and faculty.

**For more information, please contact GSN Southern Nevada Chapter President: Paul Dockweiler: [paul.dockweiler@cardno.com](mailto:paul.dockweiler@cardno.com) or Nick Saines @ 702-896-4049 (home office) or 702-845-5976 (cell)**

---

(Smith Abstract—cont. from page 6)

basal portion of the Claron Formation are the primary host to mineralization, which is also focused at the intersections of the unconformity with WNW and NNE-striking faults. Alteration consists of early, largely barren, passive silicification, followed by hydrothermal and tectonic brecciation and gold mineralization. Decalcification and clay alteration are also present. The mineralization is largely oxidized, with limonite, goethite, jarosite, scorodite, stibiconite and realgar present in mineralized zones. Rare area of sulphide mineralization consists of very fine-grained pyrite. Gold mineralization is believed to be between 18 and 13 Ma.

Pilot Gold has drilled over 150 reverse circulation holes since late 2015, with the objective of targeting unmined and/or undrilled areas between and around the historic pits. The program is testing down-dip to the north of the pits and laterally beyond the 7 km long 'Historic Mine Trend' into areas where gold has been confirmed but not systematically drilled off. Ten core holes provided sample material for metallurgical studies (including column testing). Drilling to date has provided strong evidence of oxide gold mineralization over a 1.4 km-long portion of the Historic Mine Trend.

Gold mineralization on surface and in shallow drill holes has been discovered over the entire northern part of the property, wherever the basal unconformity of the Tertiary sequence is exposed, suggesting the potential for a multi-million ounce gold system at Goldstrike.

## A Great Fall Field Trip!

by Elizabeth Zbinden

Another fabulous GSN field trip unfolded the weekend of Oct 14-15-16, 2016. Destinations were Premier Magnesite Mine near Gabbs in the Paradise Range, Rawhide Mine & Regent Project on the opposite side of Gabbs Valley on a divide between the Sand Springs Range and the Koegel Hills, and Wind Mountain Mine at the north end of the Lake Range on the way to Gerlach.



Mackay students showing off their minerals—Sage, Tenaya & Aaron

For most attendees, it was the first time we had been to the magnesite-brucite deposit. The deposit is developed in sedimentary dolomite of the Triassic Luning Formation which has been altered by the intrusion of a granodioritic stock and related dikes. There are skarn minerals, widespread but very low abundance. At this time only magnesite is being mined but at times in the past brucite was mined too. Don't bother applying for an exploration job there; they have over 60 years of reserves at current mining rates. When the mine was started in 1940, ore was shipped to Henderson NV where electricity from the new Hoover Dam was used to reduce it to magnesium metal; it was alloyed with aluminum and used to build aircraft. These days ore is processed to oxide form for many products; maybe the cupel for your latest gold assay came from Nevada magnesite.

Rawhide was familiar to some field trip participants but it was a first visit for me. Gold and silver mineralization is hosted in the Miocene Rawhide volcanic center along the northeast margin of the Walker Lane. We appreciated having plenty of time to study rocks on an inactive bench of the currently active pit of Rawhide proper and then climb a couple of hills to study outcrops and drill-road roadcuts at the Regent prospect.



Leader Chris Lowe explaining the Rawhide geology to the GSN group



PhD student, Justin Milliard sketches his interpretation of the structure at Wind Mountain with Mike Power, Jack Morton and Roger Hulstein

Wind Mountain was the destination for our third day. It is both the geologically youngest and most recently discovered of the deposits we visited. We were able to walk from the rim to the bottom of the old pit, viewing beautifully exposed details of hot spring, igneous, and tectonic activity the whole way. Highlights included fossil reeds and root casts, sinter and travertine, and a vug large enough to stand up in lined with delicate calcite crystals. Our final stop was a trench a few miles south of the old pit, exposing layers of silica related to the currently active geothermal system.

Let me put in a plug for the field trip guidebook, **GSN Special Publication 62**. It has a wealth of never-before-published historical information as well as new information.

Many thanks to our generous sponsors: Kinross provided the bus; Pershing Gold and Boart Longyear bought the food and drinks for Friday dinner; Marcus & Marcus Drilling and ALS Minerals bought food and drinks for Saturday dinner; Bravada Gold fed us lunch on Sunday; and Great Basin GIS provided plates for the guidebook. We appreciate the good-natured and informative narration we got from the site leaders: Leif Meyer of Premier Magnesite LLC; Kevin Russell of Rawhide Mining LLC; and Joe Kizis of Bravada Gold Corp. at Wind Mountain. Last but not least we thank GSN Vice President J. Kelly Cluer and GSN Executive Manager Laura Ruud for a marvelous job of planning, organizing, and executing this great trip.



Photo by Kelly Cluer

Front row L to R: Leader Kelly Cluer, Jack Morton, Ken Coleman, Sergio Pastor, Meghan Rector, Dave Shaddrick, Joe Laravie, Crystal Flaherty, Elizabeth Hollingsworth, Earl Abbott, Clay Newton, Don Hudson, Laura Ruud. 2nd row: Kevin Marks, Ryan Hoefs, Dan McCoy, Chuck Robbins, Nathan Chapelle, Joe Kizis, Radu Conelea, Mary Stollenwerk, Fleet Koutz, Don Pietz, Bob Thomasson. 3rd Row: Leif Meyer (magnesite leader), Mike Power, Roger Hulstein, Steve Weiss, Herb Duerr, Sage Gandolfo, Tenaya Brown, Aaron Rimshaw. Top Row: James Bell, Elizabeth Zbinden & Justin Milliard. Not pictured: Victoria Conelea, John Hoskins, Shalane Crosland, Jamison Ricks, Ellie Leavitt, Don Strachan, Lauren Gandolfo.





**DONATIONS NEEDED FOR THE GSN FOUNDATION**

**ROCK RAFFLE & AUCTION!!**

**G.S.N.'S ANNUAL CHRISTMAS**

**MEETING, ROCK RAFFLE & AUCTION**

**WEDNESDAY, DECEMBER 14, 2016**

**NUGGET CASINO RESORT, SPARKS, NEVADA**

**Dinner Cost - \$40.00/person**

**6 p.m. - Open Bar, Raffle & Silent Auction**

**7 p.m. - Dinner, 7:45 p.m. - Live Auction, 8 p.m. - Presentation**

It's time to remind everyone of the Geological Society of Nevada Foundation's fundraiser "Rock Raffle and Silent Auction". The event will be held at the GSN's annual Christmas meeting on **WEDNESDAY, December 14, 2016** at the Nugget in Sparks. We are hoping to gather donations suitable for the raffle or silent auction: gift baskets, attractive rock or mineral samples, gems or gemstones, jewelry, wine or other spirits, logo items, geological equipment, commemorative coins, GOLD, or any geology or mining-related items. Think of things you'd love to win! All donations will be gratefully accepted. This is the Foundation's major fundraising event and we hope to top last year's total raised.

GSN Foundation Board members will be on hand at the Reno November GSN meeting to take your donations of items. If you organize it early, we can make it easier on you AND easier on us as we prepare bid sheets and labels for the items. If you don't get organized that early please contact D.D. LaPointe to drop off donated items with her or to arrange pick-up of donated items in the Reno-Sparks-Carson City area. We need to have all items in hand by Monday, December 12, 2016. D.D.'s cell number is 775-240-4916 and email is [dlapoint@unr.edu](mailto:dlapoint@unr.edu).

Raffle proceeds support GSN Foundation's educational projects; grants to Nevada K-12 classes for transportation for earth science related field trips, scholarships to Nevada geology students, and grants for geologic mapping in Nevada.

Donors will have their names acknowledged on signs at the event as well as having their names listed in the January newsletter. The GSN Foundation is a 501(c)(3) public charity.

You can also drop off donations with Cami Prenn at Mine Development Associates, 210 So. Rock Blvd., Reno. You can drop off donations with me at the GSN office too! Thank you for your support!

# Thank you to our generous donors in October!!

## G.S.N. FOUNDATION

### PLATINUM DONORS +\$1000

David Mathewson

### SILVER DONORS \$100-\$499

Robert Ahl

Ken Ainsworth

Tom & Ana John

Dieter Krewedl

Joseph Laravie

Karl Marlowe

Carl Pescio

Ken Puchlik

### BRONZE DONORS \$1-\$99

Kristine Alvarez

Joseph Anzman

Kim Craig

Elliott Crist

Rob Foster

Brien Laird

John Lucas

Jay Olcott

Richard Perry

Steven Weiss

## G.S.N. Student Dinner Fund

Jeffrey Abbott

Opal Adams

Kristine Alvarez

Hallet Elson

Ana & Tom John

Dieter Krewedl

Joseph Laravie

David Mathewson

Holly McLachlan

Patrick Mohn

Ronald L. Parratt

Ken Puchlik

John Rice

William Wahl

## G.S.N. Student Field Trip Fund

Jeffrey Abbott

Kristine Alvarez

David Boden

Fred Breit

Tony Eng

Jim Greybeck

Joseph Laravie

Karl Marlowe

David Mathewson

Michael McClave

Roger Newell

Jay Olcott

Ken Puchlik

William Wahl

Thank you to the WINNEMUCCA CHAPTER  
MEETING SPONSOR  
for OCTOBER 2016!

THANK YOU TO THE ELKO CHAPTER  
MEETING SPONSOR  
for OCTOBER 2016!

**MAJOR**  
*Partners on the Ground*

**SWICK**   
Innovative • Productive • Safe



## AIPG CHRISTMAS EXPLORATION ROUNDUP

**Tuesday, December 13, 2016**  
Ramada Hotel (6<sup>th</sup> & Wells)  
6:00 Open Bar, 7:00 Dinner, 8:00 Program

**Companies:**  
Waterton, Newmont Mining, Barrick Gold,  
Gold Resources, Klondex Gold & Silver,  
Rye Patch, Kinross, Bronco Creek

**Meeting Sponsor: Boart Longyear**

**\$50 AIPG/GSN Members; \$60 Others**  
(cash, check)

*Mackay Students: Free*

Reservations: Kel Buchanan  
([summitcrk@aol.com](mailto:summitcrk@aol.com))  
775-786-4515, fax 786-4324)  
**by December 9, 5:00 p.m.**

*Mineral Specimens from Mark Stock  
will be Auctioned to Benefit AIPG UNR  
Club Field Trips*

## GSN MEMBERSHIP DRIVE 2017

**It's time to renew your GSN Membership  
Dues for the 2017 fiscal year!**

**RENEW NOW ONLINE AT:**

<http://gsnv.org/membership/join-gsn.php>

**\$50/year for Individual Members Dues**  
**(please add \$20 if you want a hardcopy  
newsletter mailed to you)**

**\$10/year for Nevada Student Members**

**\$25/year for non-NV Student Members**

**and ONLY \$1,250 for a**

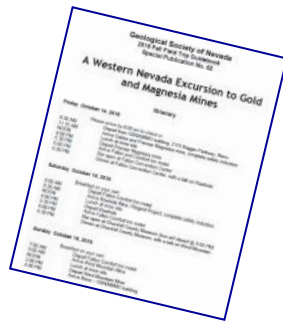
**LIFETIME MEMBERSHIP IN THE GSN!**

The **2017 Dues Renewal Form** can be found on **page 12** and a fillable form was attached along with your newsletter. The form can be printed then mailed or faxed in, OR filled out and submitted by email with a credit card payment.

Thank you to the ~450 members who have already renewed! Only about 900 to go!!

## GET YOUR BRAND-NEW, NEVER BEFORE SEEN GSN FALL '16 FIELD TRIP GUIDEBOOK SPECIAL PUBLICATION #62!!

GSN's brand-new field trip guidebook generated from October's fall field trip includes some never before seen geologic maps and reports from the Rawhide Mine. The color maps are 11X17 foldouts and there are also several mylar overlays included in the book. Sections on the Gabbs Magnesite Mine and new information from Bravada's Wind Mountain Mine round out this great publication. Cost is \$65 and you can order it by contacting Laura at the GSN office [gsn@gsnv.org](mailto:gsn@gsnv.org) or online at the [GSN Webstore](http://GSN Webstore).



The University of Arizona  
Geosciences Department  
1040 East Fourth Street  
Tucson, AZ 85721-0077

### Short Course on Cu, Mo, and Au Porphyry Deposits December 6-15, 2016

The Lowell Program in Economic Geology at the University of Arizona is pleased to announce the opening of registration for the 13th annual offering of our popular Porphyry Short Course, which will take place December 6-15, 2016, in Tucson, Arizona. We now alternate between the two formats of the course, and this year we are offering the version entitled "Cu, Mo, and Au Porphyry Deposits." This short course is designed for members of the industry and graduate students and will be led by Eric Seedorff, Mark D. Barton, and others. It has a focus on exploration geology and will include 3½ days of lectures and 2 days of labs in Tucson, as well as 3½ days of field trips to representative ore systems in Arizona. To request further information or to register, contact Rocío Brambila by e-mail at [brambila@email.arizona.edu](mailto:brambila@email.arizona.edu).

# GEOLOGICAL SOCIETY OF NEVADA

# 2017

2175 Raggio Parkway, Room 107, Reno, NV 89512 USA

Phone (775) 323-3500 • Fax (775) 323-3599 • gsn@gsnv.org • www.gsnv.org

Offices are located at NBMG's Great Basin Science Sample & Records Library at The Desert Research Institute

Walk-in Office hours: Tuesday through Friday, 8:00 AM - 3:00 PM. Mondays - Call or email for appointment.

The Geological Society of Nevada (GSN) is a non-profit, educational organization whose principal objective is to promote the advancement of geological sciences, especially as they relate to Nevada. GSN supports the dissemination of information through meetings, field trips, publications and academic endeavors. Membership is open to geologists, geophysicists, geochemists, engineers, educators, students, prospectors or anyone else with an interest in the geological sciences and/or the goals of the GSN. The organization is based in Reno with additional Chapters in Elko, Las Vegas and Winnemucca.

The GSN Fiscal Year begins June 1st. Annual dues are \$50.00, Students \$25.00 or Lifetime Membership \$1,250.00. Dues are due prior to December 31st each year. The GSN conducts a Field Trip in the Fall and one in the Spring of each year. Monthly meetings are held September through May in Reno, Elko, Winnemucca, and Las Vegas. If you would like to receive email announcements from one of the G.S.N. Chapters (Elko, Winnemucca or Southern Nevada) please check a box below.

Please help support the GSN Foundation, the Student Dinner Fund, or Student Field Trip Fund when renewing. Foundation dollars are used for the Kindergarten through 12th grade Field Trip Earth Science Grant Program, Nevada Mapping Grants, Field Camp Grants, and scholarships at the University of Nevada, Reno, Great Basin College and University of Nevada, Las Vegas.

### MEMBERSHIP APPLICATION

Renewal  New

Date: \_\_\_\_\_

Name: \_\_\_\_\_ Position/Title: \_\_\_\_\_

**CHECK HERE if everything is the same as before, except as indicated below.**

Consultant  Consulting Geologist Company Name: \_\_\_\_\_

Current Full-Time Earth Science Student University: \_\_\_\_\_ Alma Mater: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State/Province: \_\_\_\_\_ Zip Code: \_\_\_\_\_

E-Mail: \_\_\_\_\_ Country: \_\_\_\_\_

**Email address is required for Emailed Newsletter**

Office/Work #: \_\_\_\_\_ Website: \_\_\_\_\_

Fax #: \_\_\_\_\_

Cell Phone #: \_\_\_\_\_ Home Phone # (optional): \_\_\_\_\_

(Your home phone number will not be listed in the Directory)

- I would like to have an asterisk by my name in the directory indicating I am available for consulting.
- I have met the licensing requirements and want "QP" (Qualified Person) by my name in the directory.

I authorize GSN to send to me, via email: GSN event announcements, publications updates, employment opportunities, etc.

Yes  No

Optional Chapter Affiliation (to receive Chapter announcements directly and Chapter voting rights):

Elko Chapter  Southern Nevada Chapter  Winnemucca Chapter

\$50.00 - Regular Membership Dues 2017 - Email newsletter (International or Domestic) .....

\$70.00 - Regular Membership Dues 2017 - Hardcopy newsletter via postal service (Domestic Only) .....

\$10.00 - Nevada Student Membership Dues 2017  \$25.00 - Non-NV Student Membership Dues 2017 .....

(NV student's dues are subsidized \$15/ea. by Geotemps, Inc.)

LIFETIME MEMBERSHIP - 25 X the Current Dues Rate (25 x \$50 in 2017 = \$1,250.00) .....

**DONATIONS:**.....  I wish to donate to the GSN Student Dinner Fund .....

(Foundation Donated Funds will be used for unrestricted grants and scholarships unless otherwise specified below:)

I wish to donate to the GSN Student Field Trip Fund .....

I wish to donate to the GSN Foundation .....

**TOTAL:** \_\_\_\_\_

Payment Type: Check # \_\_\_\_\_  Cash  Visa  Master Card  Discover  American Express

Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Security code: \_\_\_\_\_

Name (as it appears on card): \_\_\_\_\_ Billing Street # (or P.O.) and Zip Code: \_\_\_\_\_

Return with payment to: Geological Society of Nevada,  
2175 Raggio Parkway, Reno, NV 89512  
Fax to 775-323-3599, E-mail: gsn@gsnv.org  
Website: www.gsnv.org

## Activity Update

Mike Brady, SEPTEMBER 2016

[www.activityupdate.com](http://www.activityupdate.com)

### NEVADA

NuLegacy Gold Corp. announced that recent drill results at the Red Hill/Avocado Project include 312.6-347.5 meters @ 1.04 gpt Au (AV-03). *Press Release:* September 20

Solidus Gold Inc. announced that it acquired a 100% interest in the Northumberland Property from Newmont Mining Corp. for \$20,000,000 cash. (resource = 36,518,000 tonnes @ 1.92 gpt Au indicated) *Press Release:* September 15

Gold Standard Ventures Corp. announced that recent drill results at the Pinion/Dark Star Project include 38.6-94.8 meters @ 1.83 gpt Au (DS16-21). (resource = 23,110,000 tonnes @ 0.51 gpt Au inferred) *Press Release:* September 14

Pershing Gold Corp. announced that recent drill results at the Relief Canyon Project include 112.47-118.96 meters @ 0.64 gpt Au (RC16-459); 51.6-57.18 meters @ 1.52 gpt Au (RC16-460) and 158.74-166.97 meters @ 1.41 gpt Au (RC16-462). (oxide resource = 33,561,000 tonnes @ 0.68 gpt Au measured+indicated) *Press Release:* September 6

Novo Resources Corp. announced that recent drill results at the Tuscarora Project include 88.41-92.99 meters @ 1.21 gpt Au (16TSRC-01) and 152.44-157.01 meters @ 0.90 gpt Au (16TSRC-02). *Press Release:* September 13

Royal Gold Inc. announced that it acquired a 3.75% Net Value Royalty on the Crossroads Deposit of Barrick Gold Corp. from private interests for \$70,000,000. (approximately 3,000,000 ounces of gold) *Press Release:* September 19

Premier Gold Mines Ltd. announced that recent drill results at the Cove/CSD Gap Project include 502.3-525.0 meters @ 3.4 gpt Au, 86.6 gpt Ag (PG16-07); 635.8-656.2 meters @ 7.79 gpt Au, 3.6 gpt Ag (PG16-08); 637.3-675.9 meters @ 7.75 gpt Au, 3.9 gpt Ag (PG16-09) and 632.9-650.3 meters @ 10.87 gpt Au, 15.2 gpt Ag (PG16-10). (resource @ Helen = 430,000 tonnes @ 10.46 gpt Au indicated) *Press Release:* Aug. 31

Corvus Gold Inc. announced that recent drill results at the North Bullfrog/Yellowjacket Project include 263.65-329.18 meters @ 0.40 gpt Au, 1.0 gpt Ag (NB16-309); 100.58-164.59 meters @ 0.49 gpt Au, 1.5 gpt Ag (NB16-310) and 137.16-240.79 meters @ 0.24 gpt Au, 1.0 gpt Ag (NB16-312). (resource @ North Bullfrog = 4,040,000 tonnes @ 2.43 gpt Au, 18.9 gpt Ag measured) *Press Release:* September 7

Nevada Iron Ltd. announced that it sold the Buena Vista Property (Fe) to New Nevada Resources LLC. and Rhodes Investment Ltd. for \$850,000 cash and the assumption of \$610,000 in debt. *Press Release:* September 27



### **AEG MEETING ANNOUNCEMENT**

**November 17, 2016**

**Speaker: Mr. Jerry Walker**  
**Consultant—Retired**

**“What We Know, and Wish We Knew, About  
Oil Exploration in Nevada”**

**LOCATION: BEST WESTERN  
AIRPORT PLAZA COURT RESTAURANT  
1981 TERMINAL WAY, RENO, NEVADA 89502**  
[Link to Map](#)

**SOCIAL HOUR: 5:30 PM**  
**DINNER: 6:30 PM Presentation: 7:00 PM**

**RSVP no later than 5pm, Tuesday, Nov. 15th**  
RSVP: 775 303-8271 or  
[ATHIBEDEAU@NEWFIELDS.COM](mailto:ATHIBEDEAU@NEWFIELDS.COM)

Cost: Members: \$25.00; non-members: \$29.00

**Student Dinners Sponsored by:  
Amec Foster Wheeler!**

**First 4 Students to RSVP will receive a free dinner**

# ROCK TALK

## Women's Mining Coalition

The three cofounders of Women's Mining Coalition were honored to accept the 2016 Gary Prazen Living Legend of Mining Award at the National Mining Hall of Fame's awards banquet on September 24th. Kathy Benedetto gave the acceptance speech on behalf of the three co-founders: herself, Ruth Carraher, and Debbie Struhsacker. Almost 30 WMC members were in attendance at the banquet, some of whom stayed in Las Vegas to help staff the WMC booth during NMA's MineExpo.



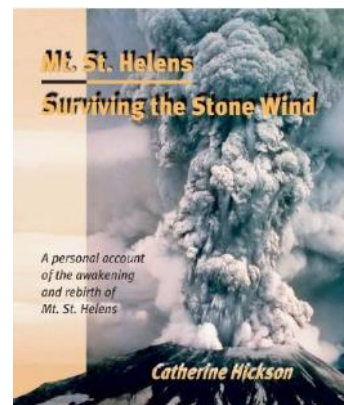
Left to Right: Women's Mining Coalition Devyn Hartmann; Senator Heller's office Gary Goldberg; 2016 Prazen Award Honorees: Kathy Benedetto, Ruth Carraher and Debbie Struhsacker.



Another GSN backpack has been on a fabulous trip. This time to three mines right here in Nevada during the GSN's Fall Field Trip! (There were actually at least four GSN backpacks on this trip to the Gabbs Magnesite Mine, the Rawhide Mine and the Wind Mountain Mine.)

### **AVAILABLE FOR SALE AT THE CHRISTMAS MEETING-DECEMBER 14TH AT THE NUGGET!**

Speaker Catherine Hickson's book, "Mt. St. Helens: Surviving the Stone Wind" will be for sale at the door of the GSN Christmas meeting on December 14th for **\$15.00—Cash or Checks only!!**



## Earthquake risk: New fault discovered in earthquake-prone Southern California region Reprinted from Science news, October 4, 2016

A swarm of nearly 200 small earthquakes that shook Southern California residents in the Salton Sea area last week raised concerns they might trigger a larger earthquake on the southern San Andreas Fault. At the same time, scientists from Scripps Institution of Oceanography at the University of California San Diego and **the Nevada Seismological Laboratory at the University of Nevada, Reno** published their recent discovery of a potentially significant fault that lies along the eastern edge of the Salton Sea.

The presence of the newly mapped Salton Trough Fault, which runs parallel to the San Andreas Fault, could impact current seismic hazard models in the earthquake-prone region that includes the greater Los Angeles area. Mapping of earthquake faults provides important information for earthquake rupture and ground-shaking models, which helps protect lives and reduce property loss from these natural hazards.

The National Science Foundation (NSF)-funded study appears in the Oct. 2016 issue of the journal *Bulletin of the Seismological Society of America*.

"To aid in accurately assessing seismic hazard and reducing risk in a tectonically active region, it is crucial to correctly identify and locate faults before earthquakes happen," said Valerie Sahakian, a Scripps alumna, and lead author of the study.

The research team used a suite of instruments, including multi-channel seismic data, ocean-bottom seismometers, and light detection and ranging, or lidar, to precisely map the deformation within the various sediment layers in and around the sea's bottom. They imaged the newly identified strike-slip fault within the Salton Sea, just west of the San Andreas Fault.

"The location of the fault in the eastern Salton Sea has made imaging it difficult and there is no associated small seismic events, which is why the fault was not detected earlier," said Scripps geologist Neal Driscoll, the lead principal investigator of the NSF-funded project, and coauthor of the study. "We employed the marine seismic equipment to define the deformation patterns beneath the sea that constrained the location of the fault."

Recent studies have revealed that the region has experienced magnitude-7 earthquakes roughly every 175 to 200 years for the last thousand years. A major rupture on the southern portion of the San Andreas Fault has not occurred in the last 300 years.

"The extended nature of time since the most recent earthquake on the Southern San Andreas has been puzzling to the earth sciences community," said Nevada State Seismologist Graham Kent, a coauthor of the study and former Scripps researcher. "Based on the deformation patterns, this new fault has accommodated some of the strain from the larger San Andreas system, so without having a record of past earthquakes from this new fault, it's really difficult to determine whether this fault interacts with the southern San Andreas Fault at depth or in time."

The findings provide much-needed information on the intricate structure of earthquake faults beneath the sea and what role it may play in the earthquake cycle along the southern end of the San Andreas Fault. Further research will help provide information into how the newly identified fault interacts with the southern San Andreas Fault, which may offer new insights into the more than 300-year period since the most recent earthquake.

"We need further studies to better determine the location and character of this fault, as well as the hazard posed by this structure," said Sahakian, currently a postdoctoral fellow at the U.S. Geological Survey's Earthquake Science Center. "The patterns of deformation beneath the sea suggest that the newly identified fault has been long-lived and it is important to understand its relationship to the other fault systems in this geologically complicated region."

Scripps researcher Alistair Harding and **Nevada Seismological Laboratory seismologist and outreach specialist Annie Kell** also contributed to the study.



Scripps geologist Neal Driscoll taking measurements of the onshore sediment layers along the eastern edge of the Salton Sea.  
Credit Scripps Institution of Oceanography

## OTHER UPCOMING EVENTS

**1 November (tentative): DREGS (Denver Region Exploration Geologists), Speaker and Topic to be announced.** Social 6 p.m., Presentation 7 p.m. at Berthoud Hall, Room 241, CO School of Mines, Golden. For more information contact James Piper at [geopros@g.com](mailto:geopros@g.com)

**1 November: Arizona Geological Society meeting, Speaker: Alexander Schauss presents** presents “Minerals, Trace Elements and Human Health”. 6 p.m. to 9 p.m. at the Sheraton, 5151 E Grant Rd. (& Rosemont), Tucson, AZ Click on the link for more info: [Alexander Schauss presents Minerals, Trace Elements and Human Health](#). Dinner is closed.


**3 November 2016 Nevada Petroleum & Geothermal Society, Reno, Nevada** monthly meeting. *Cocktails at 6:30 PM, Dinner at 7:00 PM, Ramada Reno Hotel; 1000 East 6th St., Reno NV 89512. Speaker: Andrew Sadowski, Geologist, Reno, Nevada. TOPIC: “Structural Controls of Black Warrior Blind Geothermal System, Washoe-Churchill Counties, Truckee Range, Northwestern Nevada, USA”.* Please make reservations by Tuesday, November 1, 2016 by using the following link: <https://goo.gl/forms/hKjvuuXRKcptr1yG3>

**6-12 November 2016 Alaska Miners Association Fall Convention & Trade Show.** Dena'ina Center, Anchorage, AK. Click the link to register: [https://alma.memberclicks.net/index.php?option=com\\_mc&view=mc&mcid=form\\_224748](https://alma.memberclicks.net/index.php?option=com_mc&view=mc&mcid=form_224748)

**14 November 2016 SME Northern Nevada Section Monthly meeting.** Circus-Circus Mandalay Room, Reno NV. Social Hour @ 6 pm, Dinner at 6:45 pm. Talk at 7:30 pm. **Speaker: Carl C. Nesbitt. Topic: Novel Material for Novel Electrowinning.** Cost \$30/each-Member, \$35/each-Non Member. Please RSVP by Wednesday, November 9th to Sarah Lightner, 775-746-7147 or [NNevSME@gmail.com](mailto:NNevSME@gmail.com)

**17 November 2016 AEG Great Basin Section.** Best Western Airport Plaza Court Restaurant, 1981 Terminal Way, Reno, NV. **Speaker: Jerry Walker, Consultant-Retired. Title: “What We Know, and Wish We Knew, About Oil Exploration in Nevada”.** SOCIAL HOUR: 5:30 PM, DINNER: 6:30 PM Presentation: 7:00 PM. RSVP no later than 5pm, Tuesday, Nov. 15th. RSVP to 775 303-8271 or [ATHIBEDEAU@NEWFIELDS.COM](mailto:ATHIBEDEAU@NEWFIELDS.COM). Cost: Members: \$25.00; non-members: \$29.00

## PAID ADVERTISEMENTS




Right Solutions · Right Partner  
[www.alsglobal.com](http://www.alsglobal.com)

### ALS & TERRACORE INTERNATIONAL

- ▶ Providing a one-stop shop for core services, spectral imaging and geochemistry.
- ▶ Core Image Spectrometer™ available in ALS laboratories around the world.
- ▶ Our facilities offer core cutting, core photography and full geochemical services.
- ▶ Hyperspectral data interpreted via high-speed, semi-automated computer algorithms, constrained by style of mineralization or deposit type

Contact us to discuss solutions:

✉ [clientservicesusa@alsglobal.com](mailto:clientservicesusa@alsglobal.com)  
🌐 [alsglobal.com/minerals](http://alsglobal.com/minerals)





QA/QC Consulting  
Certified Reference Materials



**“MASTER CLASS”  
Assay Quality Control Workshop  
December 6<sup>th</sup> 2016 in Reno, Nevada**

Presented by Lynda Bloom & Elizabeth Zbinden  
*With over 50 years of combined practical QC experience*

**Why Choose this Short Course:** Although many companies have QC programs, a series of nagging questions persist:

- Which standard deviation do I use to fail results?
- What should I do about it?
- How much QC is enough?
- What are the regulators looking for?
- What is precision and do I care?
- Why do I take core dups?

Presented at the AEMA Annual Meeting. Fee: US \$255  
For more information see the [AEMA website](#)

Register online at “[Master Class](#)” or Email Lynda or Elizabeth.

[Lynda Bloom](#)

[Elizabeth Zbinden](#)



**Drift Exploration Drilling, Inc., 6120 Pedroli Lane, Winnemucca, Nevada**





**For more information please contact Garth Patterson @403-601-4374 or [garth.patterson@telus.net](mailto:garth.patterson@telus.net)**

**MINERAL EXPLORATION SERVICES AND CONSULTING**





*Providing accurate, dependable, documented results.*

**We specialize in a full range of services including:**

- Exploration Project Management
- Contract and Consulting Geology
- Data Compilation
- GIS & Remote Sensing
- 3D Modeling
- Disturbance Surveying
- Soil and Rock Chip Sampling
- Claim Staking
- Abandoned Mine Hazard Fencing
- Core Processing
- Warehouse Management
- Temp Services



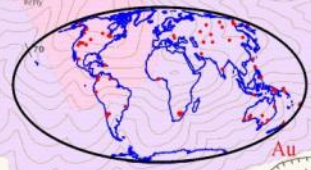


**Call us at 775.340.2395 for a free estimate on your next project**

**For more information on our services visit our website at [www.Rangefront.com](http://www.Rangefront.com)**

**NEVADA EXPLORATION GIS DATA SETS**  
HIGHEST QUALITY®

- MINERAL OCCURRENCES
- GEOCHEMISTRY
- GEOLOGY
- GEOGRAPHY
- GEOPHYSICS
- CULTURE
- POLITICAL



website: [www.greatbasingis.com](http://www.greatbasingis.com)  
 email: [jaravie@frontiernet.net](mailto:jaravie@frontiernet.net)  
 phone: 775-777-8223

**TOM CARPENTER**

---

**CONSULTING GEOPHYSICIST**

5445 Goldenrod Drive  
 Reno NV 89511  
 (O) 775.849.9707  
 (e) [tcarpenter@gbis.com](mailto:tcarpenter@gbis.com)



*Serving Mining in Nevada Since 1992*

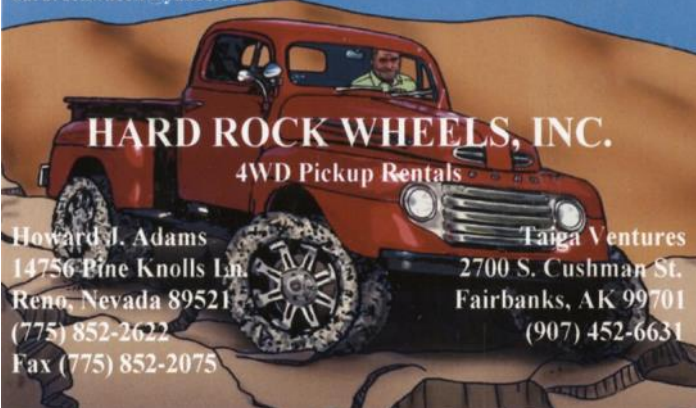
**General Engineering Contractor**

**Drill Pads  
Road Building  
Reclamation  
Earthwork**

**Office: 775-753-5832  
Mobile: 775-778-1681  
Mobile: 775-934-1837  
www.legarza.com**

**NV License #35480  
CA License #804120**

hardrockwheels@yahoo.com



**HARD ROCK WHEELS, INC.**  
4WD Pickup Rentals

Howard J. Adams  
14756 Pine Knolls Ln.  
Reno, Nevada 89521  
(775) 852-2622  
Fax (775) 852-2075

Taiga Ventures  
2700 S. Cushman St.  
Fairbanks, AK 99701  
(907) 452-6631

**JBA WORKS, INC.**

**Jo Beth Allen**  
Geologist

**GIS, Presentation Maps & Data Graphics**

GIS / CAD  
Slide & print Graphics / Illustrator & Photoshop

1055 Joshua Drive  
Reno, Nevada 89509

jobeth@jbaworks.com  
Phone: 775-303-6818



**Carlin Trend Mining  
Supplies & Service**

369 - 5<sup>th</sup> Street, Elko, Nevada 89801  
775.778.0668 [www.carlin-trend.com](http://www.carlin-trend.com)

Claim Staking - Soil Sampling - Land Research  
Core Cutting - Mine Hazard Fencing - Reclamation  
Project Management - Geological Consulting  
Geology & Drafting Supplies - AutoCad & GIS  
Temporary Employees in All Fields

Sister store located in Superior, Arizona  
Copper Triangle Mining Services 520-689-5200



Fire Assay, ICP-OES/MS,  
XRF, LECO, Custom Prep, BLEG

Chris Ioannakis, Managing Director, Analytical Services

**Corporate Office**

1500 Glendale Avenue  
Sparks, NV USA 89431-5902  
Telephone: (775) 356-0606  
Fax: (775) 356-1413

**Elko Office**

2320 Last Chance Road  
Elko, NV USA 89801-4852  
Telephone/Fax : (775) 738-9100

E-mail: AALADMIN@aallabs.com  
Website: www.aallabs.com



**OREAS**

Certified Reference Materials

**OREAS gold CRMs are the most  
homogeneous available and  
provide unrivalled confidence  
in your assay data**



**North American Distributor:**

Analytical Solutions Ltd  
[www.explorationgeochem.com](http://www.explorationgeochem.com)  
Tel: (+416) 462 9124  
Email: [info@mail.explorationgeochem.com](mailto:info@mail.explorationgeochem.com)



## Bureau Veritas Minerals

Industry Leading Solutions for the Exploration & Mining Community

- Geochemical, Metallurgical & Mineralogical Services
- Laser Ablation, Core Logging Services & XRF
- Ore & High Grade Analysis
- Industry Leading Quality Assurance
- On-Site Services



+1 775 359 6311 | [bvmininfo@ca.bureauveritas.com](mailto:bvmininfo@ca.bureauveritas.com) | [www.bureauveritas.com/um](http://www.bureauveritas.com/um)

MINERALS

**PROPERTY to  
DISTRICT SCALE  
GEOLOGIC  
& ALTERATION  
MAPPING with  
MINERAL DEPOSIT  
TARGETING**

**PETER A. DILLES MSc. Q.P. Economic Geologist**  
**(775) 972-7989** [pdilles@aol.com](mailto:pdilles@aol.com)  
*hablo Español!*

## Big Sky Geophysics

Clark Jorgensen, M.Sc.  
Geophysicist

*Field Work  
Processing  
Interpretations*

P.O. Box 353  
Bozeman, Montana 59771  
USA

Phone/Fax +1 (406) 587-6330  
Mobile +1 (406) 580-9718  
[clark@bigskygeo.com](mailto:clark@bigskygeo.com)

**For more details, my background, and case studies,  
Visit my webpage at [www.bigskygeo.com](http://www.bigskygeo.com)**



## NORTH AMERICAN EXPLORATION

GEOLOGY • CLAIM STAKING • GEOCHEM SAMPLING • LANDWORK



**DAVID MORRIS**

PRESIDENT • GEOLOGIST

895 N. MARSHALL WAY, SUITE A  
LAYTON, UT 84041

801.546.6453  
[DMORRIS@NAE-XPLORATION.COM](mailto:DMORRIS@NAE-XPLORATION.COM)

# GEOLOGICAL SOCIETY OF NEVADA



[gsn@gsnv.org](mailto:gsn@gsnv.org) ● [www.gsnv.org](http://www.gsnv.org)  
Telephone (775) 323-3500  
Fax (775) 323-3599  
2175 Raggio Parkway, Room 107  
Reno, NV 89512 USA



Panorama of Premier Magnesia Mine near Gabbs, NV— Oct 14, 2016 (photo by L. Ruud)